

**A B S T R A C T**

A method of determining a fluid inflow profile along the length of a permeable inflow region of an underground wellbore comprising:

- transferring heat into or from the permeable inflow region of the wellbore during a well shut period;
- starting production of hydrocarbon fluids via the permeable inflow region;
- measuring substantially simultaneously the temperature of the fluids at various points of the inflow region;
- determining at selected intervals of time after production start up a temperature profile of the inflow region on the basis of the thus measured temperatures; and
- determining a fluid inflow profile of the inflow region on the basis of a comparison of the determined temperature profiles at selected intervals after production start up. The heater cable may have a layer of compacted mineral powder and temperatures may be measured with an optical fiber.